March 29, aged 72, was announced by the Secretary; and on motion, Prof. Leo Lesquereaux of Columbus, O., was appointed to prepare an obituary notice of the deceased.

A short communication "On the origin of planets" was received from Prof. Daniel Kirkwood.

Pending nominations Nos. 893 to 908 and new nominations Nos. 909 to 913 were read.

On motion of Mr. J. S. Price, based upon a letter from Dr. Cattell of Easton, the use of the Hall of the Society was tendered to the American Philological Association for its next annual meeting in July.

And the meeting was adjourned.

On the Origin of Planets. By Daniel Kirkwood.

(*Read before the American Philosophical Society, April* 2, 1880.)

If Laplace's hypothesis of the formation of planets and satellites from nebulous *rings* cannot be sustained* we may conclude that each planet, at its origin, was separated from a very limited arc of the equatorial protuberance; or, in other words, that instead of the separation of a ring, the centrifugal force produced a rupture at the point of least resistance in the equatorial belt. From the chasm thus formed a nebulous mass was thrown out, which in process of time was transformed into the outermost planet.† The tendency to separation around the equator would thus be relieved, and the ellipticity of the spheroid temporarily diminished. Further condensation, however, would again increase the centrifugal force until another rupture or outrush similar to the first would necessarily result. The formation of planets from these nebulous masses may thus be explained without the necessity of supposing such matter to have been slowly collected from continuous rings.

The origin of satellites is also very obviously accounted for. In short, where the ring hypothesis is encumbered with difficulties well nigh insuperable, the theory here proposed seems less open to objection. Not improbably, however, the ancient orbits of the secondary systems and perhaps also of some of the primary planets may have differed to a considerable extent from their present dimensions, as is shown by Mr. G. H. Darwin in his "Tidal Theory of the Evolution of Satellites."‡

* Proc. Amer. Phil. Soc., vol. xviii., p. 324.

† It is now believed by astronomers that the phenomena of temporary stars, such as those of 1572, 1866 and 1877, are produced by enormous outbursts of incandescent matter.

‡ The Observatory for July, 1879.